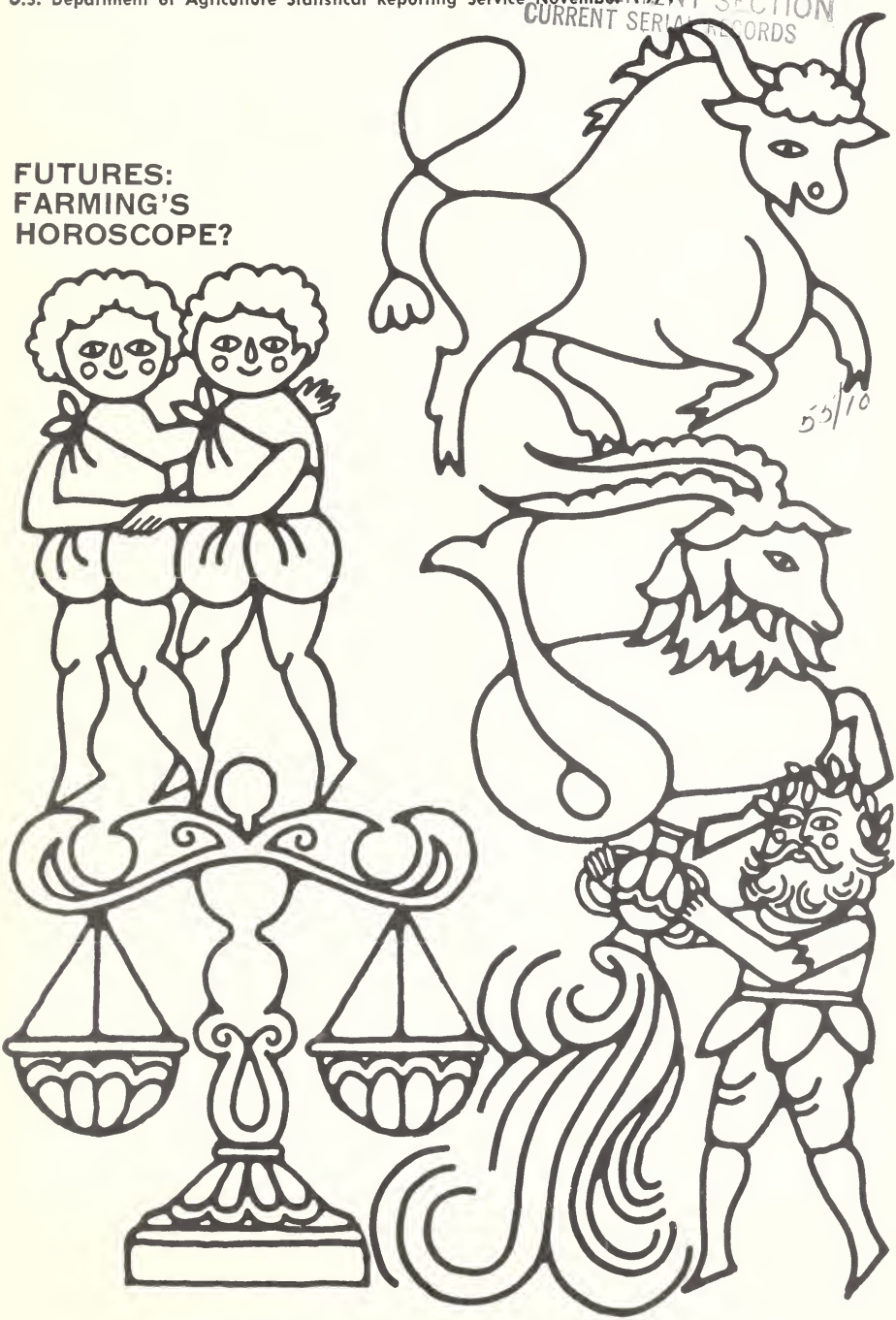
# agricultural SITUATION



the crop reporters magazine
U.S. Department of Agriculture Statistical Reporting Service November 1971

## FUTURES: FARMING'S HOROSCOPE?



## FUTURES: FARMING'S HOROSCOPE?

*A trip through the labyrinth of the commodity futures market requires an excellent guide. Our pathfinder is Dr. Allen Paul, head of the Competition and Pricing Branch, Marketing Economics Division, Economic Research Service.*

*What is the futures market?*

The futures market is the organized and regulated buying and selling of contracts for farm commodities to be delivered and paid for on some future date. The uniqueness of the activity is that most traders don't actually want the commodity so they sell the contract before delivery, sometimes at a profit, other times not.

*What farm commodities are most actively traded?*

Wheat, corn, oats, soybeans, cotton, wool, shell eggs, potatoes, soybean oil, soybean meal, live beef cattle, live hogs, frozen pork bellies (bacon), and frozen concentrated orange juice. Corn led the trading volume in 1970–71 with over 2.7 million transactions. All this trading was under Federal supervision.

*Where are the major markets?*

The two largest are in Chicago, with others in Kansas City, Minneapolis, New York, and one just underway in Los Angeles. These markets handled over $115 billion worth of trading last year compared with $92 billion in 1969–70 and $83 billion 5 years earlier.

*How does futures trading work?*

It's based on a difference of opinion. Here's an oversimplified explanation. Those buying futures contracts usually expect prices to increase for the commodity as the delivery date nears. Sellers, on the other hand, usually feel prices will glide lower near delivery time.

Let's look at an example for wheat. A futures contract for a bushel of wheat to be delivered in March of 1972 sold for $1.54 on September 8, 1971, in Chicago. The price for that contract had varied in previous trading from about $1.75 to $1.46.

That $1.54 contract might start rising toward $1.75 again before March and be sold, perhaps to someone who thinks it would go even higher. On the other hand, if the price begins to slip and the contract owner doesn't want the wheat, he could sell before March 1.

*What is the value of futures trading to farmers?*

Futures trading brings prices into the open; it increases the range of information and judgments brought to bear on the price.

Second, futures make it easier for farmers and other businessmen to choose a preferred course of action. For example, a grain grower can sell his crop on the futures market and earn a storage fee for holding the grain. Then, as delivery time nears he can buy his contract back and sell the grain for cash. Exporters can accept overseas orders for grain they do not have on inventory because futures give them a temporary ownership position until they find the grain.

Third, futures trading facilities financing for farmers and others. Grain inventories that are properly stored and hedged in futures can serve as collateral for up to 90 percent of the value of a low-interest loan. These loans free up the operator's capital for such things as more modern machinery.

*How do futures contracts help stabilize returns for farm commodities?*

It is important to realize that those who use the futures market make it possible for processors, distributors, and farmers to reduce some of their price risks.

If a wheat miller, for example, takes orders from bakers for flour to be shipped in 6 months, he can buy wheat futures now and thereby fix his wheat cost by taking delivery at the contracted price.

*What price best reflects the prospective supply and demand at a given time—cash or futures?*

There usually is little difference, except in the case of nonstorables like eggs, potatoes, and livestock. In these cases, futures traders buy a contract due 8 to 12 months in the future. Cash prices for products can reflect supply and demand prospects for only about a month or two. Thus, prices for distant delivery extend the evaluation of the market situation.

*What about storables?*

Well, for storables, such as grain, cash prices for immediate delivery reflect distant prospects just as much as futures prices do.

To illustrate, in mid-April, No. 2 yellow corn at Chicago was $1.54 and December futures were $1.47—both high prices for recent years—reflecting fears of extensive blight damage to the 1971 crop. But by mid-August such fears had subsided and both price barometers had declined $0.24. Thus, cash and futures were similarly affected by the marked change in thinking.

*What is your viewpoint of the future of futures?*

The future of futures looks healthy. The major source of growth in futures trading since World War II has been the expansion and increased specialization of the feed-livestock economy. Four times more corn and 12 times more soybeans are being sold from farms than in 1939–41 and the increased volume of corn and soybean futures trading reflects this expansion.

Recent introduction of futures trading in live cattle and hogs also is a manifestation of growth and specialization of the feed-livestock economy.

On the other hand, the old standbys of futures trading—cotton and wheat—have not shown as much vigor for related reasons. In the past two decades, low prices for grain often meant that prices were at or near Government support levels, whereas high prices meant the opposite. Yet in recent years with the changes in farm programs, future volume has been coming back.

## TRADING TALLY

During fiscal 1970–71, a record 11.8 million futures contracts were made. Last year's record represented a sharp increase of over 14 percent compared with the 10.3 billion total transactions traded during 1969–70. Here's a rundown of trading volume among the most active regulated commodities.

| *Commodity* | *Thousands of transactions* |
|---|---|
| Corn | 2,748 |
| Soybeans | 2,686 |
| Frozen pork bellies | 1,526 |
| Soybean oil | 1,464 |
| Wheat | 847 |
| Soybean meal | 634 |
| Live beef cattle | 606 |
| Shell eggs | 524 |
| Potatoes | 238 |
| Live hogs | 191 |
| Cotton | 166 |
| Frozen concentrated orange juice | 117 |
| Oats | 77 |

## CROP INSURANCE

Farmers were plenty worried about their crops this year—judging from the way they upped their purchases of all-risk crop insurance.

Through July 1971, farmers insured 17.8 million crop acres for $862 million (preliminary figures) with USDA's Federal Crop Insurance Corporation. That's a large increase from the 1970 figures: 15.8 million acres insured for $788 million as of the same date.

Farmers paid $43.9 million in premiums, compared with last year's $40.7 million. The average premium was $149, up $18 from 1970.

Corn protection increased by nearly half this year over last. Farmers insured $225.7 million worth of corn compared with $150 million in 1970. Premiums paid on the crop rose from $7.8 million covering 3.2 million acres to $11.3 million covering 4.4 million. Other crops which also enjoyed greater protection included wheat, rice, and cotton.

While protection was up, the number of all-risk policies sold fell from 1970's 309,000 to 293,000—reflecting the trend toward fewer farming operations. However, policies sold on corn rose from 61,312 to 67,880.

## FREIGHT CAR SITUATION

If you are planning to quit farming, become a hobo, and jump a boxcar for the South—please don't do it during harvesttime. That's when farmers need all the empty boxcars they can get.

According to a recent study made by USDA's Economic Research Service, most of the problem in freight car supply that affects agriculture involves general service boxcars or the cars that can be used instead of them—special service or covered hopper cars. From 1955 to 1967 the number of these three types of cars descreased from 760,100 to 684,700—and the cutback put a special pinch on shippers of grain and lumber.

The nature of farm products is such that rural areas almost always need more cars moved to them for loading than they routinely get.

Raw materials—agricultural products—are usually more bulky to ship than manufactured goods. Consequently, carloads of manufactured goods moving to rural areas are outnumbered by carloads of raw materials shipped from these areas. Rural areas often need to have empty cars moved to them for loading. Sometimes—especially at harvesttime—they just don't get enough.

In an attempt to ease the boxcar shortage, the Interstate Commerce Commission (ICC) last year added an incentive charge to the per diem system for cars. (About 65 percent of the life of a boxcar is spent on other-than-home tracks.)

Under the incentive per diem system, users of general purpose boxcars will have to pay an additional daily charge from September through February. Hopefully the higher charge will speed up the use and return of the cars.

The owners, in turn, are obligated to use the extra money they're now getting for the purchase of more general service cars to add to the Nation's rail fleet.

Also round the bend in railroading are some other developments which could help reduce the need for general purpose boxcars, according to ERS.

Railroads have made substantial additions to their special service car fleet. Covered hoppers, flatcars for hauling truck trailers, and other types of specialized cars have increased from 9 percent of the total rail fleet in 1955 to over 25 percent in 1967.

Centralized and computerized traffic control systems will also allow rail companies to keep closer track of car movements—and that might help to alleviate the shortage, too.

Lastly, greater use of other means of transportation may in time cut the demand for rail cars. Barges are becoming more important in grain transportation—moving almost 12 million tons of feed grains in 1971 compared with 4 million in 1961.

## SPOTLIGHT ON MINNESOTA

"Let's see, if you go by last year's statistics, one out of every six turkeys gracing the Nation's holiday dinner tables is raised in Minnesota."

David Taylor, Statistician in Charge of Minnesota's Crop and Livestock Reporting Service in St. Paul, tossed that comment in as he told us about the many crop and livestock items produced in his State.

"We're No. 1 in the Nation in number of turkeys produced as well as in total weight," Taylor continued. Minnesota turkey operations typically are highly specialized with annual capacities of over 13,000 birds.

Turkeys are topical at this time of year which is why we asked Taylor so much about them. But really the gobblers contributed only a relatively small part, about 3 percent, of the State's $2 billion in cash receipts from farming in 1970.

Cattle and calves are the State's biggest moneymakers. Marketings in 1970 earned farmers $492 million. The 1971 livestock inventory revealed nearly 4 million cattle and calves on Minnesota farms and ranches on January 1—placing the State 10th in the Nation in cattle and calf numbers. However, Minnesota ranked third in number of milk cows with nearly 1 million head.

Sales of milk products earned the State's dairymen $446 million last year.

Above are some of the many millions of turkeys raised last year in Minnesota—the Nation's top turkey producer. The State's highly specialized operations typically have a yearly capacity of more than 13,000 birds each.

Next time you see a sunflower, think of Minnesota. It stands No. 2 in sunflower-seed output with a crop worth $3.5 million in 1970. Production is concentrated in the Red River Valley.

"We're a long-standing dairy products leader," Taylor remarked, "and can boast of being:

—No. 1 in the Nation in butter production with 299 million pounds in 1970 or 26 percent of the U.S. total;

—No. 1 in nonfat dry milk output with 482 million pounds or 34 percent of the total.

—No. 2 in American whole milk cheese production with 128 million pounds, 9 percent of the total.

—No. 2 in dry whey for human food uses with 53 million pounds, 18 percent of the total.

—No. 3 in milk production with 9.8 billion pounds or 8 percent of the total.

—No. 3 in total cheese production with 162 million pounds or 7 percent of the total."

Hog production is also important in Minnesota which ranks fifth nationally in numbers and marketings. The value of the State's hog sales last year was $266 million.

"On the crop scene, the size and diversity of our production is imposing," Taylor stated. "We're the U.S. leader in oats, sweet corn, and timothyseed production; second in hay, sunflower seed, and sweet cloverseed; third in corn for grain, flaxseed, and green peas for processing; fourth in rye; fifth in barley, sugarbeets, and red cloverseed; and sixth in soybeans.

"In fact, Minnesota stands among the top 10 States in production for all of the major crops except cotton, tobacco, and wheat."

Leader in farm value in Minnesota is corn for grain, worth $476 million in 1970.

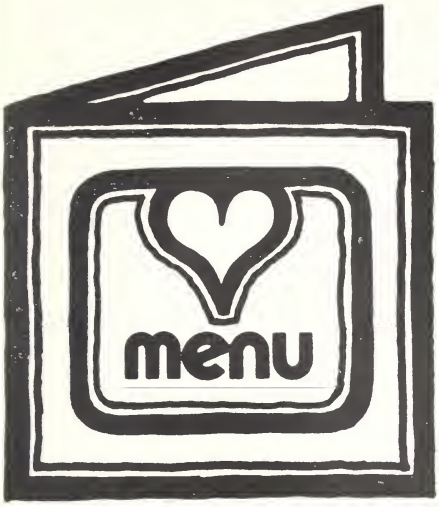
Corn is planted on more Minnesota acres than any other crop—nearly 4.6 million acres in 1970. Output last year was a record 390 million bushels. Yields averaged 85 bushels an acre—equal to the record high set in 1969.

Soybeans stand No. 2 in the crop value of production, worth $228 million in 1970. Last year's crop harvested out to 83 million bushels from 3.1 million acres. Yields were about 26.5 bushels an acre.

Minnesota's valuable vegetable crops—$21.6 million worth of potatoes, $12.0 million worth of sweet corn, and $7.9 million worth of green peas in 1970—support an important vegetable processing industry. Minnesota takes top honors in the United States for sweet corn processing with a pack worth $10.4 million and ranks third in green peas with a $7.9 million pack.

Many Minnesota farmers supplement their crop and livestock earnings by running farm recreation businesses on the side. The State, located at the headwaters of the Mississippi River and boasting more than 15,000 lakes, is a favorite vacation spot with many campers and hunters. Out of 51 million acres of State lands and waters, 12 million acres of wild lands are in the public domain.

"And in the State of Paul Bunyan and his giant ox, Babe, you mustn't neglect to talk about timber," Taylor remarked. "Timber is Minnesota's tallest crop. It brought in more than $50 million in gross income to producers in 1969 and supported a $360 million primary wood products industry. Secondary processing of the wood products resulted in a value of over half a billion dollars."




## DIET CHANGES

There is an old saying that implies you are what you eat. Some eating habits produce that larger shadow—overweight. Others can come into serious conflict with the heart and affect a person's general health.

Doctors don't agree on what is the best diet but there is considerable urging toward reduced intake of cholesterol and saturated fats. Reaction by the public to these suggestions has brought some shifts in eating patterns in recent years.

During the last two decades consumers have shown preferences for low-fat dairy products and have substituted vegetable for animal fats. One example: sales of skim milk and buttermilk have risen at the expense of fresh whole milk. Since low-fat milk costs about the same as whole milk, price is not the explanation.

While price is definitely a factor in the butter/margarine sales contest, it doesn't explain increasing sales of polyunsaturated margarines made from corn or safflower oils. The margarines high in polyunsaturated fat cost more than the other margarines but still the polyunsaturated oils increased from less than 1 percent of total fats and oils used in margarines prior to 1959 to around 10 percent today. So, fat and health consciousness have played a part in the spread market.

There have been some stringent diets suggested by medical organizations that would not only alter an individual's fat intake but certainly cause some shifts in food consumption patterns if accepted by the total population.

Here's one such diet outline:

—Reduce calorie intake to a point where it maintains body weight.

—Limit total fat consumption to 35 percent of calories, considerably less than recent levels of 43 percent.

—Decrease the proportion of saturated fat to less than 10 percent of calories.

—Increase intake of polyunsaturated fatty acids to not more than 10 percent.

—Reduce cholesterol intake to less than 300 milligrams a day, down from the 400 common in current diets.

Economic Research Service specialists made some comparisons between what people were eating in 1965–66 with what they would eat following the diet outlined above. The shifts in food consumption patterns indicate:

—13 percent fewer calories.

—15 percent more pounds of food (because of substitution of lower for higher calorie foods).

—slightly over 10 percent more beef, veal, and lamb.

—about 70 percent less pork.

—about 50 percent more poultry and fish.

—almost no change in total meat, poultry, and fish.

—almost no change in total dairy products, excluding butter.

—about 30 percent less butter.

—about 75 percent less eggs, margarine, and shortening.

—about 60 percent more salad and cooking oil.

—about 20 percent less total fats and oils.

—about 75 percent more fruits and vegetables.

—half as much sugar.

—a little less grain.

This change in eating habits would mean a slightly higher food bill—an

increase of 9 percent in terms of constant 1957–59 food prices. The boost in fruit and vegetable use would expand the bill the most.

What could happen on the farm under such a national change of diet?

The farm value for food might average about the same as with the 1965–66 consumption pattern. However, producers of poultry, beef, and many fruits and vegetables would be the gainers.

The diet shift could mean additional agricultural resources would be needed because it generally takes more to produce products from animal sources and fruit and vegetables.

Agricultural researchers have taken into consideration the recent changes in eating habits and recognized the potential for more change. Beef, pork, and other meats could be produced with lower or modified fat content by changing the feeding and breeding practices.

With eggs, only the yolks are unacceptable in the suggested diet. Currently a few companies are manufacturing a dried product containing egg white but a synthetic yolk.

### BOOKLET OFFER

The Consumer Product Information Coordinating Center has published a 16-page booklet listing public information publications of the Federal Government that are currently in print. It gives costs and provides an order blank.

To get your free copy of *Consumer Product Information: An Index of Selected Federal Publications on How To Buy, Use, and Take Care of Consumer Products,* send a postcard with your name, address, and zipcode to: Consumer Booklet, Agricultural Situation, OMS/DI USDA, Washington, D.C. 20250.

## TURKEYS GALORE!

A generation ago most farmers had a gobbler or two strutting around the barnyard, getting fattened for sale as someone's Thanksgiving or Christmas dinner. But today larger turkey production and lower retail costs have helped put turkey on tables year-round.

Turkey production has increased almost fourfold since 1935–39 when total yearly output averaged under 30 million birds and the value of turkey sales was less than $70 million. The 1965–69 average, for example, was 112 million birds and a sales value of $447 million.

The big boost in production came in the 1950's when production technologies were streamlined and the former barnyard strutter became a part of a modern poultry plant. The average turkey producing farm nowadays handles 2,500 birds annually on the basis of latest available agricultural census data. The birds are fattened on scientific formula feeds and fed and watered by machines.

The 1971 turkey crop totals nearly 118 million birds, about 2 million more than in 1970. More turkeys were raised in most of the important turkey growing States.

Commercial turkey production centers on about 20 States. Top five turkey producers are Minnesota, California, North Carolina, Texas, and Missouri.

The big turkey time for producers begins around August. From that month through December, about 14 percent of the annual crop is slaughtered each month.

For consumers, the upcoming holidays are still the turkiest time of the year. However, lots of new convenience items—frozen, oven-ready, self basting birds; turkey rolls; parts; and TV dinners—have helped put turkey on more tables during January–October, too.

Last year we each ate an average 8.1 pounds (ready-to-cook weight) of turkey—some 25 percent more than in 1957–59.

## DROUGHT AND FARMING

Almost yearly one or more of our farming areas shrivels under rainless skies. Although droughts strike the humid South and East, it's usually the Plains and the Southwest which suffer the most.

Most droughts pass, little noticed outside the areas affected. But in modern times, two major droughts have burned themselves into the Nation's memory.

If you're over 45 and come from a farm in the Corn Belt, Plains, or intermountain regions, you probably have vivid—perhaps bitter—memories of scorched fields, dry streams and ponds, and intense heat of the great drought of the 1930's. Six years it lasted— 8½ years in some places—with the worst coming in 1934 and 1936.

Two decades later—in the 1950's—dry weather seared large areas in the Plains and Southwest. The worst years of this drought were 1954 and 1956. And though less devastating than the fabled drought years in the 1930's, the scope of the 1954 and 1956 droughts was massive, as the maps with this article show.

The four maps are based on the work of Wayne C. Palmer, a researcher on bioclimatology with the National Oceanic and Atmospheric Administration, formerly known as the U.S. Weather Bureau, in Washington, D.C. Palmer has a personal interest in studying the impact of drought. He's an ex-farmer who was struggling to raise wheat and beef cattle in Nebraska during the drought of the 1950's.

Palmer's drought index measures the difference between actual rainfall and the amount needed to sustain streamflow, reservoir storage, soil moisture, and crop growth normal for an area. Temperature is also taken into account, since more rain is needed to keep up water supplies during unusually hot weather.

In examining the maps on pages 10 and 11, remember they illustrate the period of maximum severity. They do not show how long dryness lasted or seasonal timing. When rain falls, how often is as important as how much.

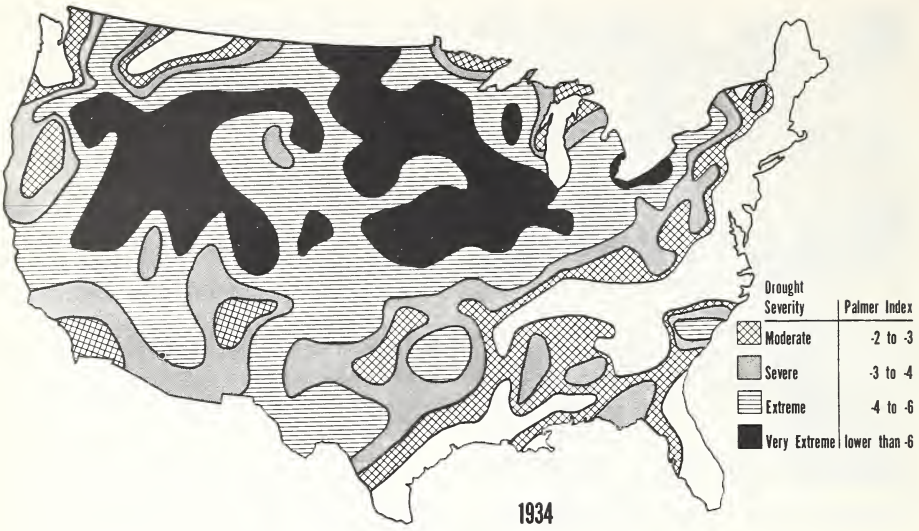
The drought of the 1930's caused by far the greatest agricultural losses. In 1934 terrific heat scorched farms and ranches from the Ohio Valley to the Rockies. By the end of July, corn, small grains, and pastures were seriously damaged. Rain in September came too late to forestall disaster.

Feed grain production in 1934 fell over 40 percent from the year before. Oat production was the lowest since 1881. The 1.15-billion bushel grain corn crop totaled about half that of 1933 and was the smallest crop since 1874.

In contrast, the 526-million bushel wheat crop was only 26 million less than the year before, mainly because the winter wheat crop was harvested before the worst of the drought.

Two years later dry weather and extreme heat brought similar devastation. In 1936 no State between the Appalachians and the Rockies had normal rainfall—most had only half to two-thirds of normal rainfall during the growing season.

So high was the heat that crops in many areas literally burnt up. By August 25, Oklahoma had 35 out of 42 days with temperatures of 100 degrees or more. Many record highs of around




118 to 121 degrees were set this year from the Mississippi to the Rockies.

Feed grain production again took the brunt of the drought, falling 40 percent from the year before. Wheat output again was average as the dry weather came too late to affect the winter crop.

The effect of dry weather on farm production during the 4 worst drought years of the 1930's and 1950's is summarized in the following table, which shows changes from the preceding year:

| *Year* | *Crop (percent)* | *Livestock (percent)* | *Total output (percent)* |
|---|---|---|---|
| 1934 | —17 | —9 | —14 |
| 1936 | —16 | +7 | —10 |
| 1954 | —1 | +3 | 0 |
| 1956 | 0 | 0 | 0 |

Quite often, unusually severe drought in sections of the Nation will be offset by bumper crops in others.

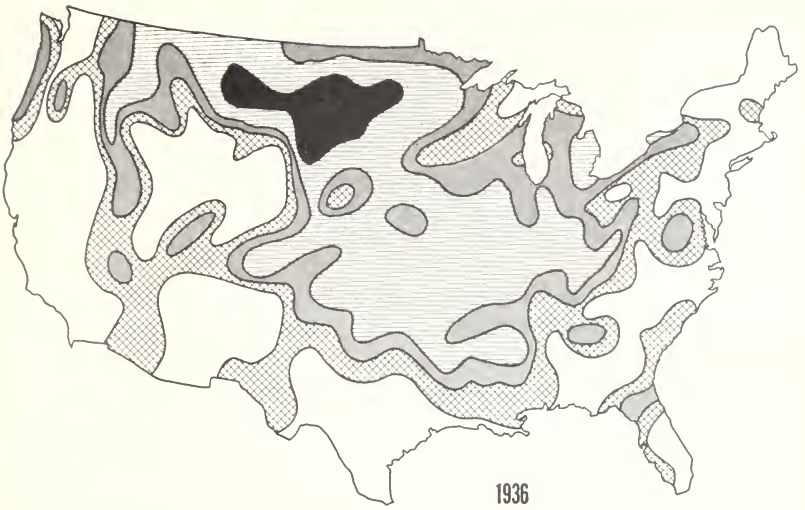
In 1954 and 1956, crop production losses appear minor on a national level, but this masks great losses to individual farmers. With good weather crop increases probably would have occurred.

From the fall of 1970 until late summer this year, a drought centered in north Texas and southwestern Oklahoma withered crops and pastures. While it's too early to assess much of the damage, winter wheat figures tell some of the story.

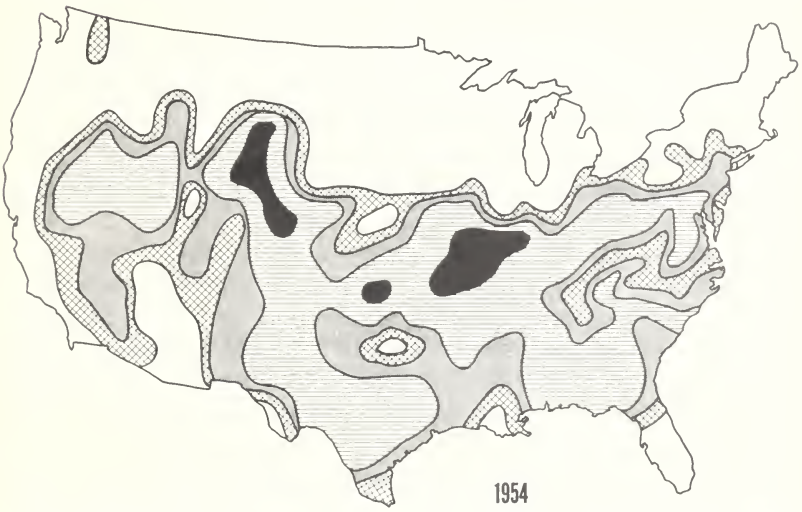
In the fall of both 1969 and 1970 Texas farmers planted around 3.5 million acres to winter wheat. In the spring of 1970 they harvested almost 2.3 million acres, with average yields of 24 bushels. In the drought-stricken spring of 1971, farmers harvested around 1.5 million acres, yields averaged around 21 bushels.

Many Texas-Oklahoma ranchers had to liquidate breeder animals. Others pulled cattle from parched ranges and had to import feed, sometimes even water. Some ranchers shipped their cattle into Nebraska, Kansas, even as far north as Wisconsin to graze.

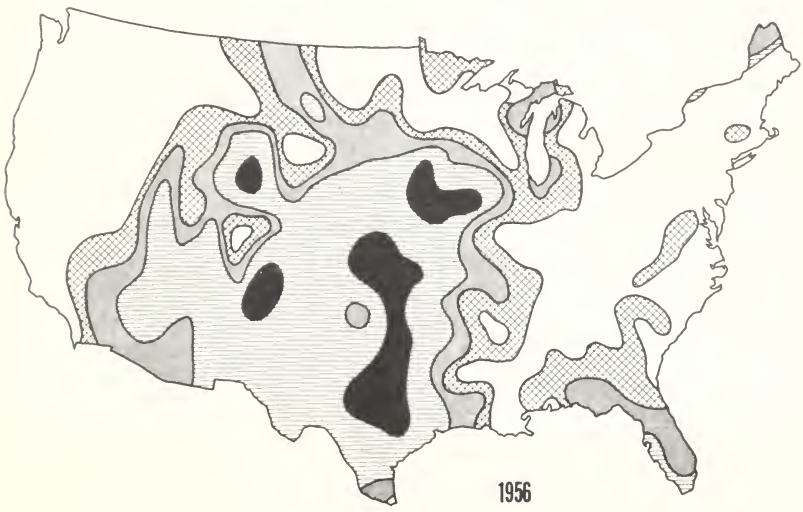
The effect of drought on livestock production is particularly hard to assess. It's often difficult to separate the effects of drought from those due to cyclical changes in numbers or to prices or other economic factors. Carryover stocks may offset the effect of reduced crops. Farmers have wide latitude in adjusting feeding rates and rations for maximum utilization of scarce feed. In any case, drought effects on livestock are apt to be delayed.



1936



1954



1956

# outlook

Digested from outlook reports of the Economic Research Service.
Forecasts based on information available through October 1, 1971

**PRESIDENT'S ECONOMIC PACKAGE** . . . Tax relief and the prospective easing of inflationary pressures on production costs are the immediate ways in which the farmer and his family likely benefited from the President's economic package announced in August.

●

**THE ECONOMIC MEASURES** could help farmers hold down farm production expenses, which were up sharply earlier in the year offsetting first half gross income gains. The 90-day freeze from August 15 to November 12 came at harvesttime, pretty well locking in farm wage rates and prices on such items as harvesting equipment and fuel.

●

**CASH RECEIPTS** . . . The freeze wasn't likely to have had much impact on farmers' cash receipts since prices of raw agricultural products were exempt from direct control. The gain in farm receipts foreseen for second half 1971 is expected to come from increased sales from the record crop output and improved prices for livestock, particularly hogs.

●

**FARM INCOME** . . . Larger cash receipts and a slowing in production costs should allow net income during the second half of 1971 to average well above last year's depressed level. But because income in 1971's first half was down, total net farm income for the year will be about the same as 1970's total of $15.7 billion.

●

**EXPORT OUTLOOK** . . . Exports of U.S. farm products may trail 1970–71's record level of $7.8 billion despite the recent economic action which in effect floated the U.S. dollar. To the extent that other countries revalued their currencies upward, the floating of the dollar may bolster our farm sales overseas. But world grain production is headed up this season, cutting foreign demand. And tight domestic supplies of cotton and maybe soybeans might limit our exports of these commodities, too.

**COTTON PRODUCTION** . . . Both larger acreage and increased yields are giving the United States an 8% larger cotton crop this year than last. The September 1 estimate put the crop at 10.9 million bales. Indicated average yields at 453 pounds per acre are only 4% above 1970's poor showing because early season growing conditions were not favorable. However, harvested acreage of 11.6 million acres is almost half a million more than last year.

●

**COTTON DISAPPEARANCE** . . . mill use plus exports . . . during 1971–72 may total about 11 million bales, down ¾ million from last year because of smaller exports. Overseas shipments are likely to stand near 3 million bales compared with 3.7 million in 1970–71. Meanwhile, domestic mill use may equal or slightly exceed last season's 8.1 million bales if economic activity picks up as expected.

●

**CARRYOVER** . . . With prospective disappearance in 1971–72 topping 1971 output, cotton stocks next summer may drop slightly from the 4¼ million bales on hand August 1 of this year.

●

**MILL USE** . . . During 1970–71 U.S. mill consumption of cotton increased nearly 1%, the first gain since 1965. Major factors responsible include: moderating competition from manmade fibers, reduced cotton textile imports, and strong demand for cloth—especially denim and corduroy. During the first 9 months of 1970–71, denim and corduroy output jumped 46% and 33%, respectively. The gain equaled 175,000 bales of raw cotton.

●

**MANMADE FIBER PRODUCTION** on a worldwide basis surpassed cotton output for the second year in a row during 1970. Production of manmades totaled a record 19.3 billion pounds. That was the equivalent of 59.7 million bales of cotton—about 8½ million bales above the world's cotton output. U.S. manmade fiber output declined modestly last year for the first time in a decade but still accounted for over a quarter of the world total.

●

**MILK COW NUMBERS** totaled around 12.4 million at midyear, down 1% from a year earlier, the smallest decline since the mid-1950's. June milk cow numbers are generally a close approximation of the year's average. Although the Lake States totaled 0.3% fewer cows than last year, Wisconsin had 8,000 more cows—the first increase since 1955. U.S. milk cow numbers are at their lowest level since the late 1800's.

**MILK PRODUCTION** . . . up 1% through July . . . should continue higher through the end of the year. Milk output for 1971 will probably total around 118½ to 119 billion pounds, up from 1970's 117.4 billion pounds.

●

**MILK PRICES** received by farmers will probably be up about 3% this year from 1970's average of $5.71 per 100 pounds. Higher prices and larger marketings are pushing up cash receipts from dairying this year—perhaps to a record high $6.8 billion, compared with last year's $6.5 billion.

●

**DAIRY RATION COSTS** should be lower during the fall and winter, if the corn crop reaches the record level expected. This would likely encourage heavier grain feeding.

## STATISTICAL BAROMETER

| Item | 1969 | 1970 | 1970 latest available data | |
|---|---|---|---|---|
| Farm output, total (1967=100) | 103 | 102 | 109 | Sept. |
| Crops (1967=100) | 104 | 100 | 111 | Sept. |
| Livestock (1967=100) | 101 | 106 | 106 | Sept. |
| Prices received by farmers (1967=100) | 108 | 110 | 111 | Sept. |
| Prices paid, interest, taxes, wage rates (1967=100) | 109 | 114 | 121 | Sept. |
| Ratio [1] | 99 | 96 | 92 | Sept. |
| Consumer price index: | | | | |
| All items (1967=100) | 110 | 116 | 122 | Aug. |
| Food (1967=100) | 109 | 115 | 120 | Aug. |
| Disposable personal income ($bil.) | 632.2 | 687.8 | 741.1 | ([3]) |
| Expenditures for food ($bil.) | 106.1 | 114.0 | 119.7 | ([3]) |
| Share of income spent for food (percent) | 16.7 | 16.6 | 16.2 | ([3]) |
| Farm food market basket: [2] | | | | |
| Retail cost ($) | 1,174 | 1,225 | 1,264 | Aug. |
| Farm value ($) | 478 | 480 | 485 | Aug. |
| Farmer's share of retail cost (percent) | 41 | 39 | 38 | Aug. |
| Agricultural exports ($bil.) | 6.4 | 7.2 | .5 | Aug. |
| Agricultural imports ($bil.) | 4.5 | 5.7 | .6 | Aug. |
| Realized gross farm income ($bil.) | 55.5 | 56.6 | 57.6 | ([3]) |
| Production expenses ($bil.) | 38.7 | 40.9 | 42.8 | ([3]) |
| Realized net farm income ($bil.) | 16.8 | 15.7 | 14.8 | ([3]) |

[1] Ratio of index of prices received by farmers to index of prices paid, interest, taxes, and farm wage rates.
[2] Average quantities per family and single person households bought by wage and clerical workers 1960–61 based on Bureau of Labor Statistics figures.
[3] Annual rate, seasonally adjusted second quarter.

## BUNDLE UP YOUR NURSERY STOCK

Nurserymen: Protect your container-grown plants, especially ornamentals, with plastic during the severe winter months. The film prevents sudden changes in root temperature.

Agricultural engineers at the Washington State University Agricultural Experiment Station found that container grown plants could stand very low temperatures, when properly hardened. But rapid changes in temperature severely damaged roots. Even a brief exposure to a mild temperature harmed the plants.

During the last 3 years, the engineers, cooperating with horticulturists, experimented with four plots of container-grown plants to determine various temperature effects. One was covered with plastic, another with saran, the third plot was the control plot, and the fourth had an insulation barrier.

Under freezing and near freezing conditions, the plastic covered plots fared best.

## TREE ODORS

Dale M. Norris, chemist at the University of Wisconsin, has been working more than a decade now on changing mouth watering aromas into unpleasant stenches.

The real purpose behind Norris' work, however, is to find another way to suppress insect damage to plants without recourse to insecticides.

Every plant possesses certain combinations of chemicals which jointly constitute odor signals to insects. Certain signals mean "food is available" while others say "stay away."

Norris and his colleagues in this research project reasoned that if plant chemical codes can be disrupted, insect pests can be confused and repelled from feeding on valuable ornamental trees and probably other plants of economic importance. Their reasoning proved remarkably accurate in controlled experiments with elm trees and elm bark beetles, bearers of Dutch elm disease.

Thirty-foot tall elm trees were injected with chemicals that made them smell unappetizing to the beetles.

So successful was the alteration of the elms' odor code that the beetles—when given a choice of twigs from treated elms or starvation—ate only half what they consumed of twigs from untreated trees.

In natural conditions, where beetles could fly to another tree that wasn't treated, the reduction of feeding in treated elms should be higher.


**AGRICULTURAL SITUATION**

**November 1971 Vol. 55, No. 10**

**Distributed free to crop and livestock reporters in connection with their work.**
**All articles may be reprinted without permission.**
**Editor: Geraldine Schumacher**

The Agricultural Situation is a monthly publication of the Statistical Reporting Service, United States Department of Agriculture, Washington, D.C. 20250. The printing of this publication has been approved by the Bureau of the Budget (January 2, 1969). Single copy 10 cents, subscription price $1 a year, foreign $1.50, payable in check or money order to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.




U. S. GOVERNMENT PRINTING OFFICE : 1971 O - 444-967

UNITED STATES
DEPARTMENT OF AGRICULTURE
STATISTICAL REPORTING SERVICE
WASHINGTON, D.C. 20250